

U.S. EPA Meeting with FieldTurf (phone conference call)

May 5, 2016; 2:00 - 3:00 PM

One Potomac Yard

2777 Crystal Drive / Arlington, VA 22202

Room S-6100

Attendees: Chris Carusiello (**CC**), Ksenija Janjic (**KJ**), and Jacqueline McQueen (**JM**) from US-EPA; Patty Wong (**PW**), and Joselyn Claude (**JC**) from OEHHHA; Darren Gill (**DG**) from FieldTurf.

Introductions

KJ: What portion of FieldTurf fields are outdoors as opposed to indoors?

DG: The majority are outdoors. Indoor markets as a whole are small.

KJ: Are those indoor fields located in specific regions?

DG: No, the indoor market for us is largely driven by collegiate installations. The big D1 schools located across the nation, like University of Georgia or University of Connecticut, regardless of geography, have the indoor installations. We've done installations for the University of Florida, Florida State, University of Oregon, University of Washington, and Washington State. Primarily the market is not necessarily pay-for-play soccer types, but for NCAA or NFL teams.

PW: Are you aware of any indoor fields in California?

DG: Absolutely, we definitely have them.

CC: Are fields with retractable roofs considered indoor fields or are only fields that are permanently enclosed indoor fields?

DG: Most of them are always indoors. We have some NFL stadiums, like the Indianapolis Colts, that have a retractable roof. Most of what I'm talking about are indoor practice facilities, and none of those are going to have retractable roofs. Those are all brick and mortar fields, with permanent roofs.

KJ: Do you get your crumb rubber straight from manufacturers or do you go through a third party?

DG: Straight from manufactures.

KJ: These facilities have the space to stock the material for you?

DG: They do.

KJ: How much tire crumb material is typically installed on a field?

DG: In most of our systems the typical amount you have is 3 lbs of crumb rubber per square foot. Typical field could be 80-85,000 square feet. That times 3 lbs gives you about 250,000 lbs of material. If you average a field use that number of 250,000 lbs of crumb rubber material.

KJ: What happens to the unused tire material at the installation?

DG: We'll ship enough quantity for the field itself. Then we'll leave some as what's referred to as "attic stock,"

which is enough material to fill in the low spots (around penalty kick areas) or areas of high use. We'll leave some attic stock behind but otherwise we're not shipping extra material to the site.

KJ: What do you recommend to your customers, the cryogenic or the ambient crumb rubber?

DG: We have two systems: the elite which is the three layer infill system. The infill layering system is a base layer of sand, a middle layer which is a mix of sand and rubber, and top layer of rubber. This is the initial FieldTurf system that is patented. It's what our brand was built off of. There are actually two different sieve sizes. The sieve size in the middle is a similar sieve size to sand and the sieve size on top is a larger sieve. The reason why we use cryogenic rubber in the process, is related to the size and shape of it. Cryogenic shape is much more circular, where you get more of an angular process in ambient processing. So we use cryogenic in that system because of the size and shape we're able to achieve in processing. We sell more of the elite system than our other system – which is just a two layer system – sand on bottom and rubber on top. It's more of a common system which our competitors would install, and uses an ambient rubber. You don't have to worry about the ambient interlocking with sand because the two systems are separate.

KJ: Are there different levels of technology for cryogenic processing?

DG: I don't believe so.

KJ: We saw the ECOMAX that uses a recycled turf component. What does this mean?

DG: It is the blade and the backing that is recycled. If you're going to replace the field, you can try to reuse the crumb rubber and sand because the material is in great condition. We'll take the carpet and convert it into numerous things, one of the things is an infill product. We also have shock pad – or a pad that goes underneath, that is made up partially of that recycled turf.

KJ: Can you tell us about CoolPlay?

DG: CoolPlay is an extruded cork composite. The base of the product is cork. Take a typical sand-rubber system and instead of using the rubber layer on top, we'll actually put this layer of what we call cool play, which is the extruded cork composite.

CC: Does that require different maintenance than a cryogenic system?

DG: It does not, because the specific gravity and bulk density of cool play is similar to that of crumb rubber. Now with other infill systems like pure cork – which is much lighter and less dense – you get a different answer, the maintenance requirements start to go up. Our cork system, which is a great system, is called Purefill and works extremely well. But because of its lack of weight the material moves more. And there is more required brushing or grooming than the sand – rubber type system.

KJ: In sand-rubber systems, what is the ratio between rubber and sand?

DG: If you look at it by weight, typically there are three pile heights of turf on a standard turf system. Basically you have a 2 inch system, a 2.25 inch system, a 2.5 inch system. Ratios vary depending on the pile height. For all intents and purposes, we can stick to the traditional pile height, 2.5 inch, the most popular for contact sports in high school, college, or the NFL. For that system there is 6.2 pounds sand / square foot and 3 pounds of rubber. So a total of 9.2 pounds of infill, so basically 32% is rubber in terms of weight. Volume calculations are a lot more difficult. Most of our systems range between 30-35% for the rubber to sand ratio.

KJ: How do you get the size exactly right so that you get the same size granules between the crumb rubber and the sand?

DG: We ask that of our manufacturers. Once the material arrives on-site the installers have a set of sieves and they verify that it's the right size before it gets installed. We obviously try to control it at both sources. Our rejection rate is very low.

KJ: What different product types you carry?

DG: If we were to characterize infill, we obviously have traditional rubber, then you have the alternative infill which is growing.

KJ: Are there differences in the construction of indoor and outdoor facilities?

DG: Nope.

KJ: Retractable domes are no different when it comes to construction, correct?

DG: Yes.

KJ: Is gluing in the lines done at installation at every field?

DG: Yeah pretty much every field. You're seeing a trend to put nice lines and logos on a field. You try to do as much as you can inside a manufacturing plant. So if you're talking about a football field, your sidelines are coming from the plant. Your yard lines are from the plant, but your hash marks need to be glued in on site. There's still quite a bit of gluing, look at the traditional football field—the end zone letters, center logo, hash marks, and numbers are all glued in.

KJ: What types of glues are used for that?

DG: Typically a hot melt glue.

KJ: How long does a field last before it must be replaced?

DG: If I have to put a number on it, I'd say 10 years is a good estimate. You see some fields that are on the higher side—12, 13, some fields are on the ground 15 years and you see others that, once they hit their 8 year warranty, get replaced. There's really two drivers here, one is the visual aspect—the client just wants to put a new field in. The other is a performance aspect—so some of the higher-end clients just believe that the performance after 8 years just isn't strong enough. Or, some professional team put in a new field after 4 years. Talking to a new client, building a high school or community field, I think 8-10 is really what we'd like to tell them.

KJ: Do you have a sense of how much crumb rubber is lost between the installation and the replacement?

DG: You don't see a lot, the majority of our fields don't need to be top dressed or redressed during its life. Not a significant amount where after 5 years you have to add hundreds of thousands of pounds back into it. Most of our fields go without getting material added. Obviously, there is a little bit lost through "walk-off rubber"—through shoes, athletic equipment, but otherwise you don't see much loss aside from that.

KJ: What are the maintenance requirements on your warranty policy?

DG: I don't want to necessarily tie it to the warranty policy per say, but we have a program called BARS:

brushing, aerating, raking and sweeping. Those are generally the 4 things you have to do to field. There are ancillary things if you want to remove snow because you're in a northern climate, you can do that. Some fields paint, you can do that, in terms of general maintenance, it falls into the BARS method. Doing one of those every 4-6 weeks. The sweeping can happen more often if you have a lot of events, it doesn't really disturb the infill; it just sweeps the debris off the top surface. There's no rules of how many times you can sweep, as per your events schedule— otherwise every 4-6 weeks for others, the brushing, aerating and sweeping.

CC: Are these requirements FieldTurf's requirements or do you go by the Synthetic Turf Council's guidance?

DG: These are FieldTurf's guidance.

JM: You're saying, one of the three may happen every 4-6 weeks, or must you do all of them?

DG: One of the three. Aerating should be done every 3-6 months, and if you have a new field, I wouldn't even recommend doing that in your first week.

JM: What is aerating?

DG: Aerating takes spiked wheels that get down deep in the infill to get air in the system. One of the keys why fields get hard over time, is because they're losing their air. By aerating, you're not injecting air, but allowing pockets of air to exist.

KJ: You provide maintenance recommendations, but is FieldTurf involved in any way in the maintenance?

DG: In some cases we are. We have program called Field-Care, which does offer the ability for our clients to use our service to maintain their field. That is something we offer.

KJ: Do you recommend anything different based on indoor field, outdoor field, climate, or anything specific to certain conditions?

DG: Not specifically. By geography, besides from the desire to remove snow, there's really nothing that needs to be done differently with respect to maintenance.

KJ: On the side of those antimicrobials, do you know what type of product is generally used?

DG: Not specifically, no.

KJ: This is something that the maintenance crew will decide for themselves?

DG: I know our customer service department will make recommendations, and I'm sure I can get those names for you.

KJ: Is there anything you recommend for odor control?

DG: It is not typically a request we get from clients.

CC: What are some of the high-use areas of the field that need to be re-filled more?

DG: That depends on the sport. On a soccer field, it is the penalty kick areas. During practice there is a penalty kick dot will have very little-to-no infill in it. That will need to be refilled. If you're looking at football field, typically during a football game there is typically no high use area. But in some cases during practices coaches will do specific drills in an area where they are literally doing sprints between 5s and 10s, but this is less of an

issue. To compare in terms of their severity, the soccer one is a 10 on 10, the football one is a 2 on 10. The other one with an issue is lacrosse, so the goal area is typically very worn down. These areas doesn't necessarily have low infill, but this high use area would wear the fibers more and just generally put more wear on the surface.

Cc: How do you do maintenance for the elite three layer system?

DG: We'll premix a bucket of the mix and have a separate bucket of the rubber that the facility manager or maintenance team will take out to the field with a little garden rake and pour some material and rake it in. So we'll recommend they put the mix in first and the rubber on top secondly.

Cc: Do the layers stay intact?

DG: They do, it's a question we get often. I've looked at enough fields that we've replaced and you see the infill staying the same.

KJ: Are engineering controls or personal protective equipment used to protect the workers from exposures during construction, installation or maintenance of the fields?

DG: I believe they wear some respirator equipment when they are infilling.

KJ: We wanted to check in with regards to potential tours. We were wondering if there are any differences or if they are the same in terms of installation?

DG: I'd have to check to see what is being installed.

KJ: We would appreciate that information. And also wondering about the installation phases: sewing in, line laying, and the infilling. Are these 3 phases pretty consistently executed or do they vary?

DG: They are typically pretty consistent. The sewing is consistent, the installing of lines and logos would certainly depend on the layout of the field. If it's a soccer field there will be less work than on a football field. If it's a football field then it depends on how intricate the letters are.

KJ: But even for the inlaying on the lines it's the same method and process?

DG: Yes, the same method and process.

KJ: Do you have any maintenance practitioner point of contacts for indoor fields?

DG: I can work on that for you.

KJ: Thank you so much and thank you for being responsive and prompt.